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# There is no neutrality: what mathematics do we use?

## No hay neutralidad: ¿qué matemática utilizamos?

## Il n'y a pas de neutralité : quelles mathématiques utilisons-nous ?

## Não há neutralidade: que matemática é essa que utilizamos?

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**Abstract**

Is Mathematics neutral? Is Mathematics exempt from the social and cultural demands that are part of the social construction of this world? Questions like these have been troubling us and took shape during the process of developing a master's degree in Mathematics Education that constructed narratives with four Black teachers who work in the training of people who will teach Mathematics. The absence of Mathematics in these narratives resonated in our investigation guided by Critical Discourse Analysis. In view of that, we have assumed the Imperialist character of Mathematics and produced problematizations about which curricula are developed when Mathematics can be understood from this perspective. The result is the exercise of denaturalizing the meanings that structure the field of Mathematics, in order to imagine other possible mathematics(es).

***Keywords:*** Mathematics, Imperialist, Neutrality, Curricula, Mathematics education.

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**Resumen**

¿Son las Matemáticas neutrales? ¿Están exentas de las demandas sociales y culturales que forman parte de la construcción social de este mundo? Preguntas como estas nos han inquietado y se concretaron durante el desarrollo de una Maestría en Educación Matemática que construyó narrativas con cuatro docentes negros que trabajan en la formación de docentes de Matemáticas. La ausencia de las Matemáticas en estas narrativas resonó en nuestra investigación, guiada por el Análisis Crítico del Discurso. En vista de esto, asumimos el carácter imperialista de las Matemáticas y problematizamos qué currículos se desarrollan cuando las Matemáticas pueden entenderse desde esta perspectiva. El resultado es un ejercicio de desnaturalización de los significados que estructuran el campo de las matemáticas, para imaginar otras matemáticas posibles.

***Palabras clave***: matemáticas, Imperialismo, Neutralidad, Plan de Estudios, Educación matemática.

**Résumé**

Les mathématiques sont-elles neutres ? Sont-elles exemptes des exigences sociales et culturelles qui participent à la construction sociale de ce monde ? Ces questions nous ont préoccupés et ont pris forme lors de l'élaboration d'un master en didactique des mathématiques, qui a construit des récits avec quatre enseignants noirs travaillant à la formation de futurs enseignants de mathématiques. L'absence des mathématiques dans ces récits a résonné dans notre enquête guidée par l'analyse critique du discours. Face à cela, nous avons assumé le caractère impérialiste des mathématiques et avons problématisé les programmes d'études élaborés lorsque les mathématiques peuvent être appréhendées sous cet angle. Il en résulte un exercice de dénaturalisation des significations qui structurent le domaine des mathématiques, afin d'imaginer d'autres mathématiques possibles.

***Mots-clés*** : Mathématiques, Impérialisme, Neutralité, Programme scolaire, Enseignement des mathématiques.

**Resumo**

A Matemática é neutra? A Matemática é isenta das demandas sociais e culturais que fazem parte da construção social deste mundo? Perguntas como essas têm nos inquietado e tomaram forma com o processo de construção de uma pesquisa de Mestrado em Educação Matemática que construiu narrativas junto a quatro professoras negras que atuam na formação de pessoas que ensinarão Matemática. A ausência da Matemática nessas narrativas, ressoou em nossa

investigação orientada pela Análise Crítica do Discurso. Frente a isso, assumimos o caráter Imperialista da Matemática e produzimos problematizações acerca de quais currículos são elaborados quando a Matemática pode ser compreendida na referida perspectiva. Apresentando como resultado o exercício de desnaturalizar os sentidos que estruturam o campo da Matemática, para imaginarmos matemática(s) outras possíveis.

***Palavras-chave:*** Matemática(s), Imperialista, Neutralidade, Currículos, Educação matemática.

## There is no neutrality: what kind of mathematics do we use?

This article is the result of a master's level investigation (Oliveira, 2024) which sought to understand the professional development process of Black female Mathematics professors working in public universities in the state of Mato Grosso do Sul as teacher educators. These professors work in undergraduate Mathematics programs in the state. This development process considers the intersections and influences, primarily, of Racial and social Issues in their career paths, which culminate in their practice with teachers who will work in future Mathematics classrooms. Through this research, we aimed to understand how social markers of difference – gender, race, class, territory, religion, among others – were present and affected/affect, or not, in/the educational stages of these women.

That said, this work used the life story Narratives (Bruner, 2014; Clandinin & Connelly, 2011; Jørgensen, 2022) as a production method, through narrative interviews using a semi-structured script, conducted at a date, time, and location agreed upon with four Black female Mathematics professors: *Dandara*, *Carla*, *Carolina*, and *Marielle*. The participants were selected via Google Forms on their self-identification as Black women and their engagement in discussions that provided an opening for dialogue on Racial Issues in their educational trajectories. The names were chosen by the interviewees to represent stages, movements, and political acts in their journeys. This process of recalling and (re)constructing their narratives fostered a space for mutual reflection among all participants in the investigation process: the authors of this article and the narrators of their own stories, after all, they all intersect in one way or another, with greater or lesser intensity, the identity pathways described here.

Through the recollection of their life stories, these Black women were able to narrate their experiences and lived realities. In telling their stories, they were able to engage in and share a (self-)analysis of their formative processes and the ways in which social, racial, territorial, gender-related, and other issues have permeated/permeate their journey.

To analyze those narratives, we employed the concept of Intersectionality (Akotirene, 2019; Collins, 2015; Crenshaw, 2002) alongside the theoretical framework of Critical Discourse Analysis (CDA) (Resende, 2020; Wodak, 2004). These analyses were carried out using theory and concept together as means of problematizing/estranging what we have come to understand as established/given/standardized about the stories of Black women in our society, organized through recognition technologies based on the body, skin color, gender acts and performances, among others. We selected excerpts from the narratives that addressed, in an intersectional manner, the social markers of difference. CDA was not used to follow all of

its established stages, but to explain how the discourses of the participating Black professors corroborate a system of domination and hegemony, not blaming them but producing with what was said and narrated during the meetings.

The concept of Intersectionality seeks to investigate and render intelligible the multiple and simultaneous inequalities, oppressions, and silencing that permeate and accumulate in subalternized bodies and in the lived experiences of socially marginalized individuals, particularly those of the Black women we engaged with in this study. Meanwhile, CDA was employed as both a tool for denunciation and exposition. This theoretical framework enabled us to study, critique, and denaturalize the discourses perpetuated in society, which emerged prominently, sometimes implicitly, sometimes explicitly, in the narratives produced with these Black female Mathematics professors participating in this research. We chose to intersect these conceptual approaches because we operate from the premise that discourses function as tools and instruments of power, maintenance, and control of bodies. In other words,

> [...] to estrange knowledge that has been predominantly stigmatized as originating from white men. […] Therefore, these issues must be addressed by adopting a stance of critical estrangement toward the stigmas surrounding these intersections and overlaps, in order to establish, within both general educational and mathematics education contexts, the foundations for decolonial mobilization (Rosa & Esquincalha, 2024, pp. 160-161, own translation).

The article sought to reflect on the Mathematics that permeated the narratives of the four interviewed women, through the lens of Cosmoperception (Oyěwùmí, 2021) – an inclusive framework of (de)scribing worldviews from distinct cultural and ethnic groups, taking into account the particularities and singularities of these communities without, however, privileging the vision as the sense that outlines our world. We also employed Intersectional Critical Discourse Analysis, particularly because, as already emphasized, the authors of this text acknowledge their biases, alignments, and divergences regarding the object of analysis within the research. This stance became a way to work within the gaps and openings that the system offers, as we operate with discourses and bodies that denaturalize and disrupt presumed hegemony and standardization.

By resisting the universalizing characteristics of hegemonic discourses, we tend to believe that what we produce will not change how the world is perceived and experienced. However, using these strategies – which run counter to the system – reveals how our speeches, gestures, actions, and practices contribute to the maintenance of inequalities that affect different bodies – especially and specifically those of Black women, who subvert what was supposed to

be predetermined for them, but also those who believe, or are led to believe, that marginalization is their rightful place. And to maintain this hierarchy, to uphold its superiority, the so-called universal discourse has served as an ally (perhaps even produced) in the domination of bodies considered subalternized.

This entire scenario finds fertile ground in our field, Mathematics, as it operates within universalist frameworks. Problematizing the supposed neutrality of the field – and its detachment from social demands – is both a commitment and a political act, which have continually unsettled us throughout our academic production and professional experiences as Mathematics educators.

Following this brief contextualization that informs the position from which this work emerges, the present article aims to discuss and problematize the notion of Mathematics as an Imperialist construct. Fundamentally, the unease that sparked this inquiry stems from the absence of Mathematics within the narrative co-constructed with Black female Mathematics professors for the aforementioned dissertation. From these absences in discourse, we discuss the notion of Imperialist Mathematics, which may justify such silencing.

Thus, how can we establish social markers to engage with Mathematics, not the standardized version we are accustomed to, but with other mathematics(es) that are attentive to the cultural cosmoperceptions this field helps construct? What follows are the ways we have come to perceive this field when intersecting it with subalternized bodies, such as those of Black women, with cultures, and with their own particularities and subjectivities.

To support this critical endeavor, we will draw on excerpts from the life story narratives generated during the dissertation research to corroborate the arguments and concerns we intend to present in this paper and that are conventionally deemed universal within Mathematics as a disciplinary field.

## The imperialism of mathematics *or* an imperialist mathematics?

We have sought to venture down paths that provoke us to interrogate the standardizations and norms that accompany the field of Mathematics, thereby generating subversive approaches to explore other mathematics(es) through interpretations and conceptualizations that have the potential to imagine alternative curricula. This disruptive practice has had repercussions within Mathematics Education curriculum research (Tamayo, 2017; Tamayo & Mendes, 2021).

We acknowledge the intrinsic political potential of teaching and learning mathematical content within Brazil's Basic Education curricula, even though Mathematics is universally

recognized as a cornerstone of modernity and a fundamental component for the economic, scientific, and technological development of a nation (Valero, 2017; 2018). We start from the understanding that the teaching and learning of Mathematics are not limited to teaching numbers and formulas but rather involve understanding the ways in which Mathematics is embedded in social, economic, ethical, cultural, and political practices, and how it can be used either to reproduce or to challenge structures of power (Pais, 2012).

In general, the functions of teaching and learning within a curriculum (Paraíso, 2016) constitute a field in constant dispute. As a teaching artifact, therefore, the curriculum organized to consolidate the Imperialist character of Mathematics involves processes of transmitting, replicating, fixing notions and developing operations that constitute, justify, and support the relevance – and, even more so, the urgency – of a joint and organized redirection toward what has come to be understood as this field of knowledge, which, in one way or another, is (re)produced to maintain and establish capitalist ways of life. Although we have initiatives such as Critical Mathematics Education and the Ethnomathematics Program, we have made little real progress in overcoming a form of Mathematics that would serve to overcome the peripheral and subordinate positions of nation-states such as Brazil.

Specifically, the teaching and learning functions of Mathematics curricula have been widely discussed (Vale & Bueno, 2024) and problematized in relation to the intended outcomes of formal education. Aware of that, we assume that Mathematics – like any other human production – is developed and articulated through moralities and values, promoting subjectivities through the curriculum, which embodies and recombines them through a kind of alchemy (Popkewitz, 2004). Knowledge is intertwined with political and cultural practices, and the curriculum itself is a practice that produces subjects of specific types at a given time. It ensures integration through individuals' participation in order to "[...] secure citizenship, organizing a kind of program, coordinated by the curriculum, that prepares for the exercise of rights and duties"[4] (Kroef, 2001, p. 110) within a social and hierarchical structure that serves particular ways of being and existing in the world. This world, organized according to a capitalist rationality, takes Mathematics as a condition of possibility for inhabiting it (Kollosche, 2014), after all, Mathematics is in everything (Gondim, 2023).

Our analysis begins with a discussion grounded in gender issues. In Nzegwu (2023), there is a robust analysis of how Imperialism operates within the academic system. The article serves as an entry point into the subtle and effective politics of racial and gender difference,

[4] Own translation.

used as strategies of silencing and erasing the other in order to (re)affirm privilege. It discusses various forms of gendered Imperialism in academic production and presents multiple analyses of the "social, psychic, and political effects of whiteness structures in academia and the various forms of gendered Imperialism that emerge from the denial of cultural rights and cultural individuality" (Nzegwu, 2023, p. 151). The same occurs with Mathematics (O'Neil, 2016), despite its supposed neutrality.

To undertake this critical inquiry, we began by searching the most widely used academic databases in Brazil, such as Google Scholar, CAPES Journals Portal, and the Brazilian Digital Library of Theses and Dissertations (BDTD). Our goal was to identify existing research that addresses Mathematics as Imperialist. The only work we found was an article by Ole Skovsmose (2005), titled *Ghettoising and Globalisation: A challenge for Mathematics education*[5], which discusses Mathematics Education as a weapon of Western Imperialism. Skovsmose (2005) does not frame Mathematics itself as Imperialist, but rather as a tool used by that system. Another point of divergence from our proposal is that Skovsmose, in this article, conducts research that problematizes Mathematics Education, whereas what we are problematizing in this work is the field of Mathematics itself as being Imperialist – not limited to Mathematics Education. We believe that Mathematics Education, as a research field, has shown itself to be somewhat more open to denaturalizing the hegemonic discourses that surround it, even though it still continues to (re)produce Imperialism in its very nature.

What we are proposing here is a possibility to discuss the Cultural Policy of Mathematics (Education) (Valero, 2023), which remains largely constrained by discourses of neutrality entrenched in this field. This area "can be thought of as [a] political technology for *creating types of people*" (Valero, 2023, p. 547, own translation), since Mathematics is understood as a classification mechanism, segregating groups, promoting elitist knowledge, and determining ways of living and being for certain people, because it supposedly demands rationality, objectivity, and universality, as it is seen as

> [...] a science that has built a formal edifice from within itself (though its axiomatization, in its proof criteria, its modes of theorematic enunciation, in the constitution of its rigors, etc.), and has thereby become the measure of all other practices (Gondim, 2023, p. 08, own translation).

And all that serves to construct and create desired subjectivities within these bodies under its power (Valero, 2018). In other words, Mathematics (Education) operates as an

[5] Own translation.

effective mechanism for constructing and enacting contemporary forms of subjectivity, shaping practices of being and existing in the world. Therefore, when we refer to the Cultural Policy of Mathematics Education, we do so in an attempt to understand how the cultural practices of this field have been constituted.

> The Cultural Policy of Mathematics Education [has] a particular interest in examining the broad network of Mathematics Education practices and their cultural and political significance for the constitution of notions, across time and space, of the modern subject. The study of the Cultural Policy of Mathematics Education is a shift – or better yet, an expansion – of research in Mathematics Education (Valero, 2018, p. 105).

It is important to state that thinking of Mathematics (Education) as Imperialist means drawing a parallel with cultural policy studies in this field, while also rupturing and confronting these established realities (Resende, 2020). Our role is to denaturalize and spark critical engagement with the discourses that have been perpetuated for decades in how we think about, produce, and reflect on Mathematics.

Before addressing these concerns, it is important to briefly discuss and explain what we understand by Imperialism, to subsequently present the intersection we aim to problematize in this work. Imperialism, according to Nzegwu (2023), constitutes the maintenance of an order that benefits a so-called minority of the world's population, enabling this alleged minority to accumulate a greater capital. It operates through the economic, territorial, political, cultural and social domination of peripheral countries by central nations – European and American. To do so, an ideological construction is necessary, in which the superiority of this center is imposed, and only its worldview and knowledge production are deemed valid, while all other possible alternatives and perceptions of the world are suppressed and excluded – reducing peripheral populations to mere means of exploitation.

In other words, we have come to understand this system as a set of hierarchical relations among nations, peoples, and cultures. This generates numerous cultural impacts that propagate and entrench themselves over time, given that curricula and discourses serve as effective tools for the (re)production of knowledge centered on Western/European/American cultures. It is precisely this phenomenon that we seek to interrogate through the lens of Imperialism as it manifests in interpersonal relations, that is, an ontological and cultural Imperialism.

Discussing the Imperialism of Mathematics is to conceptualize this field as exclusionary and silencing, to think of the erasure of the multiplicities surrounding Mathematics that are, at several moments, neglected. According to Nkiru Nzegwu (2023), Imperialism is encoded and inscribed in the intellectual and cultural productions propagated by the West. Who is allowed

to produce knowledge? Who has the right to produce Mathematical knowledge? Which bodies are considered qualified for such tasks? We answer for you: white men, guided by Western and cisheteropatriarchal assumptions. In other words, none of the world's ethnic, ethical, and cultural diversity. What we highlight are the erasures and silencing that occur in this field when we pose questions like those exemplified above.

It is not difficult to interpret and perceive Mathematics through Imperialist structures, given that Imperialism "establishes a hierarchical relationship of domination and subordination between nations and institutions" (Nzegwu, 2023, p. 155, own translation). Mathematics has been operating in precisely the same manner – commonly referred to as the *queen of sciences*. The important point is not to reinforce Mathematics within this bubble of superiority, but to question the constructed narrative of superiority ascribed to it. Only then is it possible to avoid operating within and (re)affirming these perceptions that permeate the field.

Mathematical knowledge has been practiced in an Imperialist manner within academic structures, schools, curricula, and knowledge production by prioritizing objectivity, rationality, and universality – characteristics that Mathematics proudly claims to embody.

> Imperialism [of Mathematics as we have been discussing and as can also be interpreted here] is implicit in the very structure of Western academia and encoded in its processes, in the production of knowledge itself. It establishes an absolute logic of existence, a specific mode of thought and behavior, and tacitly ratifies [though not so tacitly] a determined style of speech, of existence, of acceptability, and of ownership. Voice, gender identity, and above all, skin color is discursively dispersed and subsequently ordered to determine whether someone is deemed worthy of voice, respect, and even admission (Nzegwu, 2023, p. 159, own translation).

"Mathematics is tied to the [social] notion of intelligence, qualifying individuals as citizens by creating and elaborating a desired model or type" (Oliveira, 2024, p. 29, own translation), which contributes to the neglect and silencing of certain bodies and voices within research in this field – thus helping to maintain Mathematics on its Imperialist pedestal. These constructions are conceptions that we propagate through our own speech, and so deeply naturalized are they that we often forget to address emerging themes intersected with Mathematics.

> We must break free from the illusion that surrounds and constitutes Mathematics, a simple search – a survey of the faculty in this field at certain universities – is enough to discover, or at least get an idea, that Mathematics follows a pattern. And I have come to believe that Mathematics operates through exclusion, not inclusion, as it has already shaped which bodies are deemed capable of accessing this knowledge – establishing a pattern in which Mathematics becomes oppressive (Oliveira, 2024, p. 30, own translation).

Following these inquiries, it is important to summarize and affirm that thinking about the Imperialism of Mathematics – or Imperialist Mathematics – are ways of exposing and problematizing the sense of superiority attributed to this field, which promotes an idea of universality that has long been propagated throughout society, and not only in discussions of knowledge production. In this section, we presented the Imperialism of Mathematics as a practice of erasure and silencing, so that we might dismantle – or at the very least twist and blur – the hegemonic discourses. We are

> against the oppressive practices that feed and sustain domination and erasure. This means resisting the homogenizing force that makes [us] become someone other than [ourselves], to imitate its voice, to speak its language of power. Liberation means [us] finding [ourselves], reclaiming [our] voice, [our] language, [our] culture, and embracing the laconic poetic language […] that softens the path, [with] sensitive, abstract, dynamic, and revelatory words [in our] […] narratives (Nzegwu, 2023, p. 231, own translation).

**What kind of Mathematics is present in our speeches and curricula?**

It is important to distinguish the type of Mathematics discussed in this work, and that is well-structured and defined by its rigor, formalization, and neutrality, from those which operate attentively to the particularities and singularities of the subject(s). To clarify these distinctions, we begin by demonstrating the connections between Hegemonic Mathematics and Imperialism, present in the narratives of the Black female Mathematics professors who participated in the dissertation, through three branches: Homogenization, Superiority, and Alienation. Subsequently, we will present a brief discussion on the other mathematics(es) we have been working with, which are present in this article.

It is also important to mention that these concerns of ours will not be divided into subsections, as they are intersectional themes that would not fully reveal their impacts and potentials if presented separately.

Neutral and Neutrality are words we use to refer to subjects who remain impartial, without expressing their own ideals – a form of abstention from taking stances with the aim of asserting their detachment in debates and discourses that influence and affect the social and political development of society, as well as its injustices and problems of various kinds. And it is within these structures of impartiality and neutrality that Mathematics, as discussed here, is perceived as Imperialist, in the sense that it is constituted apart from social issues in its very genesis. After all, it serves purposes of impersonality (Kollosche, 2014).

Based on our perceptions and the meanings we assign to these words, we can state and systematize that Mathematics is anchored in a well-established assertion: “Mathematics is a

field socially constructed as neutral, exact, rigid, and masculine" (Lima, Fragozo & Godoy, 2023, p. 138, own translation), to which we add: and white. Our concerns emerge precisely from this supposed neutrality that permeates so-called *exact* Mathematics.

> Under the guise of neutrality, Mathematics is often understood as a field isolated from society, as if its construction process occurred without human interference, as if it existed independently of people. From this perspective, Mathematics is seen as neutral and, therefore its detachment from discussions on social justice, gender, race, class, sexual orientation, among others would appear justifiable (Lima, Fragozo & Godoy, 2023, p. 140, own translation).

This Mathematics we usually encounter through our official curricula is allegedly based on exactness, rigor, and objectivity. This reinforces the idea of neutrality, since, for many, mathematical content is considered more important than the demands of society. But how could Mathematics be neutral, considering it is produced by human hands that carry subjectivities and beliefs, which in turn reflect their worldviews (O'Neil, 2016)? A single question is enough to challenge and deconstruct this supposed neutrality of Mathematics: whose bodies, whose hands, granted the status of universality that Mathematics has been holding? Do these hands have color, race? Do they have gender? Sexuality? Then, it becomes "easy" to perceive that Mathematics itself is not neutral, but the people who use it attempt to make it appear so. And who are those people? White, Western, heterosexual and dead men (Oyěwùmí, 2021). In other words, "Mathematics is not neutral, it attempts to be made neutral by and for men" (Lima, Fragozo & Godoy, 2023, p. 151). And that is what we have grown accustomed to, Mathematics that operates within a logic of supposed neutrality and homogenization, where there is no room for what differs from what is dictated as rule and standard to be followed, where there is a single exact answer, a single method, and that which diverges must be erased or rendered invisible. *Marielle*, for instance, affirms this when she mentions that Mathematics operates through the universalization and homogenization of knowledge.

> Marielle – *It's because Mathematics is exempt, it's neutral. There's a text by Roger Miarka and Diego Gondim in which they talk about the supremacy of Mathematics – this Mathematics with a capital "M". So, this neutral Mathematics doesn't really exist, but they portray it as neutral. So much so that Mathematics manages to homogenize the classroom. Everyone's the same, learns the same way, and everything's just fine…*

Homogenizing the classroom is part of the cosmoperception, as presented to us, of an Imperialist Mathematics, for the domination exercised by this science leads us to highlight how gender, race, and sexuality, for example, are ignored in Mathematics classes because we are taught that such issues are not part of mathematical content. That is, in those spaces, what truly

matters are the concepts, theorems, corollaries, and definitions, to the extent that racial, gender, and social issues, among others, are not addressed, and when they appear, they are merely used as (often artificial) contexts to introduce some mathematical content.

Mathematics is operated in a way that seeks to homogenize bodies; in order to study and learn this subject, it is considered unnecessary to consider the subjectivities, singularities, and social markers of the people who engage with it. Mathematics holds the reputation of being the same, regardless of where in the world we are (Rosa & Giraldo, 2023). So, *Marielle*'s statement: "everyone learns the same way, and everything's just fine…" is "easily" interpreted, because Mathematics carries this Imperialist, supposedly universal character, and those who do not learn, contrary to *Marielle*'s expressed expectation, deserve an entire undertaking in and of themselves, in order to access one of the most valued forms of knowledge within the core practices of Modernity.

Another point to discuss from *Marielle*'s statement is the information and the explanation of Mathematics with a capital "M". According to Oliveira (2024), this field can be perceived and interpreted as being composed of an intellectual elite, since groups that present a satisfactory performance in Mathematics tend to be seen both socially and academically as superior. *Mathematics* (with capital letter) is that which operates through neutrality, Imperialism, and the hierarchization of bodies, one that segregates bodies that do not conform to the standardizations it imposes. In contrast, *mathematics(es)* (lowercase and in the plural) represents the production of alternative paths, a form of knowledge that is neither fixed nor complete, and that pays attention to the cultures and ethnicities surrounding it.

> The word "Mathematics", in the singular, is often associated with a single body of immutable and evolutionary knowledge that is constituted through the scientific productions of research mathematicians. The choice of the term "mathematics(es)", in the plural, marks a political stance that opposes that single – Eurocentric – narrative of knowledge, reflecting our acknowledgment of the dynamism and diversity of the historical and social processes that permeate the production of mathematical knowledge (Matos, Giraldo & Quintaneiro, 2021, pp. 878-879, own translation).

And it is with those mathematics(es) that we have created and found openings to problematize and discuss the Imperialist system in which Mathematics was constructed and remains embedded. It is through them that we attempt to subvert the normative modes this field offers when we choose it as our professional domain. That is, mathematics(es) that do not position themselves as superior knowledge in relation to other fields.

Moreover, this domain not only intersects with race, class, gender, and other social markers but also operates through their silencing and erasure. Mathematical knowledge cannot

be limited to a single culture and worldview (Luna, 2023), it must be taught through a curriculum that intersects those markers with Mathematics.

> Marielle – *after we study a bit more, we start to realize that this [the mathematics classroom] also has a color… So, these issues, thinking about this exclusionary Mathematics… Many have given up [on their studies] because of Mathematics. Sure, there were other subjects that also failed students, but I used to attend grade council meetings… I was the secretary and had to stay to take minutes; when the grade council started, they'd turn to the Math teacher and aks: "So? Did they pass with you or not?", as if he or she dictated the pace of the meeting: "So-and-so failed with you, then [he/she] will fail with me too! But if [he/she] failed the majority, I'll take it out here and it'll be a straight failure for me!*

According to Valero (2018), this supposed superiority of Mathematics is tied to the claim that learning Mathematics is empowerment and is of utmost importance for the development of the future.

> Everybody repeats; no one seems to question it. And yet, what is known is that the more society wishes this to be the case, the more differentiation, classification, and segregation occur with and through Mathematics performance. Isn't that odd? (Valero, 2018, p. 106)

We do find it strange, because while Mathematics empowers, it also oppresses bodies that do not conform to its established standards. Being a teacher of that subject grants opportunities that are not available to all other disciplines. When the teacher in *Marielle*'s speech changes her opinion about a student's grade under the influence of the Mathematics teacher's "superiority", she (re)affirms her intellectual Imperialism (Oliveira, 2024). As Rosa and Giraldo (2023) state, it is a science that creates distinctions, which establish hierarchies.

Thus, Mathematics is bound to a curriculum that leaves no room to perceive or reflect on the social, provoking a certain type of alienation – a distancing from reality – a curriculum that endorses discourses about neutrality, exactness, and rigidity, which ultimately impacts the production of subjectivity (Neto, 2019). What we are saying is that mathematics curricula, both in Basic Education and Higher Education, by focusing on concepts, theorems, and definitions, end up generating a kind of alienation in those who are learning, leading them to not question the world around them and to focus solely on Imperialist Mathematics, which is structured to establish a hierarchy of what should be considered important and worthy of attention in their lives. And the statements of *Carla*, *Dandara*, and *Marielle* reveal this kind of alienation which

consumes them at times.

> Carla – *(...) when I was already in undergrad, that [racist situations] never exactly happened to me in a direct or explicit way. In my master's [program], though, I had a completely different mindset, and I think it's during the master's that I start reflecting on those issues. Because I think that Mathematics Education ends up tending to have this strong philosophical aspect, this concern with the social, and I start thinking…*
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> Dandara – *Just so you have an idea, we didn't even know the colors of the plants at The University of São Paulo, we used to say that we were so much like zombies that we didn't know anything about what was around… You know? It was surreal. I think a lot of people come out kind of crazy from the PhD [in Pure Mathematics] (…). Like I told you, it's madness! We'd to the study room and then straight home…*
>
> Marielle – *(...) I also worked in Youth and Adult Education (EJA), and there were workers, teenagers who were past the minimum school age, which was 13 years old, and had to attend night classes. And some of them, to help at home, became van fare collectors – that's where their Mathematics came from. There were seamstresses, construction workers, call girls, some trans women who also used to turn tricks – all in one classroom. But I really got stuck in Pure Mathematics – beautiful, magnificent, superior. Later, I started to think: "I work so much in construction and we see so much Applied Mathematics, why not start bringing those things into class and listen to the people? What kind of Mathematics do they have?", and it was a really cool experience…*

At what point did we stop perceiving the world to make Mathematics and mathematical knowledge the focus of our lives? Perhaps from the moment Mathematics is imposed upon us as something so superior, so detached from the relationships that govern the world, that it is no longer necessary to perceive it. And, simultaneously, from the moment it began to occupy an increasingly prominent place in society, especially after World War II (Valero & Meaney, 2014), becoming established as essential knowledge for the development of individuals and nations, particularly in relation to technological and, unsurprisingly, economic aspects. But whom does this epistemology of mathematical knowledge serve?

## Some (additional) concerns, to conclude or (further) problematize...

Could Mathematics be disconnected from the lives of those Black women? But how could that be, if they, as educators of future Mathematics teachers, hold professional roles intrinsically linked to this field of knowledge? In face of the omnipresent call across the Western world for the urgent need to include girls in STEM fields (Neto, 2024), wouldn't they be considered success stories of the international initiative that seeks to recruit these girls?

One of the starting points of this article, as already described, was the absence of Mathematics in the narratives produced with the Black women Mathematics professors. It was necessary to prompt all four of them in order for Mathematics to appear in some form. This need to push the subject suggests that Mathematics was not directly associated to the challenges related to race, gender, class, among others experienced by these professors – topics they chose to highlight. And this absence does not seem to be present only in the trajectories of these educators, but also in curricula and dominant discourses.

What have we been discussing in our research, in our work, in our academic productions? What discourses are perpetuated when we engage in knowledge production alongside Mathematics? Which national and international Mathematics (Education) events have committed themselves to creating spaces for discussing the urgent issues in our society? How many works have been produced in this field that intersect with race, gender, and sexuality? What kinds of mathematics curricula are being developed? It seems obvious to us that the Imperialist ideas we have been analyzing might obscure our understanding of the reasons behind this absence/lack. As Oliveira (2024) argues, it is the norms that define who is deemed capable of producing knowledge and, by extension, which themes we are expected to address.

> But this absence is to be expected, considering that we live in a society that, in addition to excluding and oppressing those who do not fit the norms – cis, heterosexual, male, white – also distances you from yourself as a subject and places you as an object, making it clear that threatened lives have color, class, and gender (Oliveira, 2024, p. 27).

And considering that we are socially organized within a capitalist system that operates under these norms and through an Imperialist logic, it is to be expected that the majority of educational and scientific spaces and projects are aligned with this mode of organizing life and, therefore, reproduce its values – especially in a field considered one of the pillars of modernity, such as Mathematics. There is no neutrality. Mathematics operates as an Imperialist practice precisely because it serves an Imperialist system.

However, this article is not an invitation to hopelessness, but a call to collective reflection and action toward developing strategies of resistance and contestation for curricula

that subvert this Imperialist logic. Although we may not be able to fully dismantle these historical, social, and political constructs at first, it is through the cracks and openings in our research that we have been able to engage the power relations surrounding Mathematics with social demands. What we have aimed to do here is to bring to light – and into discussion – alternative pathways so that gender, sexuality, class, race, among other markers may rupture the bubble of false neutrality that encompass Mathematics.

We are not seeking to fill gaps, nor to present results that might solve the problems hidden beneath the shadow of Mathematics' so-called neutrality. What we have attempted to do in these pages was to build dialogues that help us navigate the void within the cracks of the superiority of a field that is completely unconcerned with social demands.

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